REMARKS/ARGUMENTS

In the Office Action dated February 6, 2008, claims 1-38 were rejected under 35 U.S.C. §103 as being obvious over "Applicant's Admitted prior art" and Klayman et. al. (USP 5699365).

By this amendment, independent claims 1, 21, 27, and 33 have been amended. Claims 9, 11-20, 25, 31, and 38 have been canceled. New claims 39-45 have been added to the application and include new independent claims 39 and 44. It is respectfully submitted that all claims, as amended, are patentable over the art, taken singly or in combination.

THE INDEPENDENT CLAIMS

Claim 1

Claim 1, as amended, reads as follows:

> 1. A method for dynamically configuring a redundant area of a page associated with a physical block of a non-volatile memory of a memory system, the method comprising:
>
> determining whether a predetermined metric value associated with performance of the non-volatile memory meets a predetermined criterion by checking one or more metric values stored in the non-volatile memory;
>
> storing at least one byte in the redundant area when the predetermined metric meets the predetermined criterion, the at least one byte corresponding to an error correction code (ECC) used by a first ECC algorithm to check for errors in the page;
>
> altering the at least one byte when the predetermined metric fails to meet the predetermined criterion, wherein the at least one altered byte corresponds to an ECC used by a second ECC algorithm to check for errors in the page, where the first ECC algorithm and the second ECC algorithm have differing computational costs.

The Klayman reference is directed to a data communication system whereas claim 1 is directed to a non-volatile memory system. Klayman fails to disclose or suggest any manner in which a non-volatile memory may be implemented. It has no bearing on the claimed apparatus and methods of the present application. *Non-volatile memory systems are directed to storage of data in an array of semiconductor storage cells that can retain*

the data in the storage cells in the absence of electrical power. In contrast, data communications systems are directed to communications between a communications transmitter and a communications receiver over a transmission medium that serves as a communications channel.

Klayman fails to disclose or suggest that a predetermined metric associated with performance of a non-volatile memory may be accessed from a redundant area of a page as one or more metric values. Klayman also fails to disclose or suggest that the one or more metric values obtained from the redundant area may be compared to a predetermined criterion. Still further, Klayman fails to disclose or suggest that a byte in the redundant area of the page may be stored in the redundant area for use with a first ECC algorithm and altered for use with a second ECC algorithm depending on whether the predetermined criterion is met.

The Klayman reference merely discloses a data communication system that may implement dynamic forward error correction to correct transmission errors on a transmission channel connecting a communications transmitter and communications receiver. Nothing in the reference either discloses or suggests the applicability of such forward error correction to any other system type, let alone a non-volatile memory system. Despite the fact that the Klayman reference uses multiple memory devices (references 122, and 131a1 through 131n2 of Figure 2; reference 155 of Figure 3), no mention of error correction is made in Klayman with respect to these devices.

Still further, forward error correction is an error correction mode that is generally unique to data communications systems, not non-volatile memory systems. It is used in Klayman for transmission of data by a *communications transmitter* to a *communications receiver* in an attempt to compensate for *transmission errors* that may occur over *the transmission medium of the communications channel* that connects the *communications transmitter* to the *communications receiver*. The forward error correction is only used for decoding of transmitted analog signals at the communications receiver and does not relate to error correction that may occur during reading and writing of digital data in a non-volatile memory. It is therefore respectfully submitted that problems associated with storing data in a non-volatile memory are substantially different than problems associated with data transmission from a communications transmitter to a communications receiver

along a transmission channel. Consequently, there is no motivation to combine the teachings of Klayman with teachings relating to non-volatile memory systems.

The portion of the present application that the Examiner has deemed to be "Applicant's Admitted Prior Art" (APA) fails to disclose or suggest the method of claim 1. Although that portion of the present application references two ECC algorithms that may be used in connection with a non-volatile memory, there is no suggestion that a predetermined metric associated with performance of a non-volatile memory may be accessed from a redundant area of a page as one or more metric values. The APA discussion also fails to disclose or suggest that the one or more metric values obtained from the redundant area may be compared to a predetermined criterion. Still further, Klayman fails to disclose or suggest that a byte in the redundant area of the page may be stored in the redundant area for use with a first ECC algorithm and altered for use with a second ECC algorithm depending on whether the predetermined criterion is met.

There is no motivation to combine the teachings of the Klayman reference with the information provided in the APA discussion. The "Field of the Invention" identified by Klayman is:

> This invention relates, in general, to *data communications and data communications systems and devices* and, more specifically, to an apparatus and method for adaptive *forward error correction* in *data communications*.

(emphasis added).

As noted above, forward error correction is an error correction mode that is generally unique to data communications systems, not non-volatile memory systems. It is therefore respectfully submitted that problems associated with storing data in a non-volatile memory are substantially different than problems associated with data transmission from a communications transmitter to a communications receiver along a transmission channel and a motivation to combine the teachings of the Klayman reference with the information provided in the APA discussion is lacking.

Claim 21

Claim 21, as amended, reads as follows:

21. A memory system comprising:

a non-volatile memory, the non-volatile memory including a physical block, wherein the physical block has a page with a data area and a redundant area;

means for determining whether a predetermined metric associated with performance of the non-volatile memory meets a predetermined criterion by checking one or more metric values stored in the non-volatile memory;

means for storing at least one byte in the redundant area when the predetermined metric meets the predetermined criterion, the at least one byte corresponding to an error correction code (ECC) used with a first ECC algorithm to check for errors in the page; and

means for altering the at least one byte when the predetermined metric fails to meet the predetermined criterion, wherein the at least one altered byte corresponds to an ECC used with a second ECC algorithm to check for errors in the page, where the first ECC algorithm and the second ECC algorithm have differing computational costs.

Klayman is directed to a data communications system while claim 21 is directed to a non-volatile memory system. Klayman fails to disclose or suggest that a predetermined metric associated with performance of a non-volatile memory may be accessed from a redundant area of a page as one or more metric values. Klayman also fails to disclose or suggest that the one or more metric values obtained from the redundant area may be compared to a predetermined criterion. Still further, Klayman fails to disclose or suggest that a byte in the redundant area of the page may be stored in the redundant area for use with a first ECC algorithm and altered for use with a second ECC algorithm depending on whether the predetermined criterion is met.

The Klayman reference merely discloses a data communication system that may implement dynamic forward error correction to correct transmission errors on a transmission channel connecting a communications transmitter and communications receiver. Nothing in the reference either discloses or suggests the applicability of such forward error correction to any other system type, let alone a non-volatile memory system. Despite the fact that the Klayman reference uses multiple memory devices (references 122, and 131a1 through 131n2 of Figure 2; reference 155 of Figure 3), no mention of error correction is made in Klayman with respect to these devices.

Still further, forward error correction is an error correction mode that is generally

unique to data communications systems, not non-volatile memory systems. It is used in Klayman for transmission of data by a *communications transmitter* to a *communications receiver* in an attempt to compensate for *transmission errors* that may occur over *the transmission medium of the communications channel* that connects the *communications transmitter* to the *communications receiver*. The forward error correction is only used for decoding of transmitted analog signals at the communications receiver and does not relate to error correction that may occur during reading and writing of digital data in a non-volatile memory. It is therefore respectfully submitted that problems associated with storing data in a non-volatile memory are substantially different than problems associated with data transmission from a communications transmitter to a communications receiver along a transmission channel. Consequently, there is no motivation to combine the teachings of Klayman with teachings relating to non-volatile memory systems.

The portion of the present application that the Examiner has deemed to be "Applicant's Admitted Prior Art" (APA) fails to disclose or suggest the apparatus of claim 21. Although that portion of the present application references two ECC algorithms that may be used in connection with a non-volatile memory, there is no suggestion that a predetermined metric associated with performance of a non-volatile memory may be accessed from a redundant area of a page as one or more metric values. The APA discussion also fails to disclose or suggest that the one or more metric values obtained from the redundant area may be compared to a predetermined criterion. Still further, Klayman fails to disclose or suggest that a byte in the redundant area of the page may be stored in the redundant area for use with a first ECC algorithm and altered for use with a second ECC algorithm depending on whether the predetermined criterion is met.

Claim 27

Claim 27, as amended, reads as follows:

> 27. A method for processing a page associated with a physical block of a non-volatile memory of a memory system, the method comprising:
>
> determining whether at least one byte associated with a first error correction code (ECC) algorithm is to be altered for association with a second ECC algorithm based on whether a predetermined metric associated with performance of the non-volatile that is stored in a

redundant area of the page meets a predetermined criterion, the at least one byte being stored in a redundant area associated with the page; and

dynamically configuring the redundant area in response to the predetermined metric meeting or failing to meet the predetermined criterion such that the at least one byte is altered to be associated with the second ECC algorithm.

Klayman is directed to a data communications system while claim 21 is directed to a non-volatile memory system. Klayman fails to disclose or suggest that a predetermined metric associated with performance of a non-volatile memory may be accessed from a redundant area of a page to determine whether a byte associated with a first ECC algorithm is to be altered for association with a second ECC algorithm. Klayman also fails to disclose or suggest that the byte may be dynamically configured based on whether the predetermined metric meets or fails to meet a predetermined criterion.

The Klayman reference merely discloses a data communication system that may implement dynamic forward error correction to correct transmission errors on a transmission channel connecting a communications transmitter and communications receiver. Nothing in the reference either discloses or suggests the applicability of such forward error correction to any other system type, let alone a non-volatile memory system. Despite the fact that the Klayman reference uses multiple memory devices (references 122, and 131a1 through 131n2 of Figure 2; reference 155 of Figure 3), no mention of error correction is made in Klayman with respect to these devices.

Still further, forward error correction is an error correction mode that is generally unique to data communications systems, not non-volatile memory systems. It is used in Klayman for transmission of data by a *communications transmitter* to a *communications receiver* in an attempt to compensate for *transmission errors* that may occur over *the transmission medium of the communications channel* that connects the *communications transmitter* to the *communications receiver*. The forward error correction is only used for decoding of transmitted analog signals at the communications receiver and does not relate to error correction that may occur during reading and writing of digital data in a non-volatile memory. It is therefore respectfully submitted that problems associated with storing data in a non-volatile memory are substantially different than problems associated

with data transmission from a communications transmitter to a communications receiver along a transmission channel. Consequently, there is no motivation to combine the teachings of Klayman with teachings relating to non-volatile memory systems.

The portion of the present application that the Examiner has deemed to be "Applicant's Admitted Prior Art" (APA) fails to disclose or suggest the method of claim 27. Although that portion of the present application references two ECC algorithms that may be used in connection with a non-volatile memory, there is no suggestion that a predetermined metric associated with performance of a non-volatile memory may be accessed from a redundant area of a page to determine whether a byte associated with a first ECC algorithm is to be altered for association with a second ECC algorithm. The APA discussion also fails to disclose or suggest that the byte may be dynamically configured based on whether the predetermined metric meets or fails to meets a predetermined criterion.

Claim 33

Claim 33, as amended, reads as follows:

> 33. A method for dynamically configuring a redundant area of a page associated with a physical block of a non-volatile memory of a memory system, the method comprising:
>
> determining whether a set of bits in the redundant area is to be altered based on whether a predetermined metric associated with performance of the non-volatile memory meets a predetermined criterion, where the redundant area includes information corresponding to the predetermined metric, the set of bits including error correction code (ECC) information associated with a first ECC algorithm, wherein the set of bits are substantially grouped in a first configuration for use by the first ECC algorithm; and
>
> altering the set of bits responsive to determining that the predetermined metric meets the predetermined criterion, wherein the set of bits are altered to include ECC information associated with a second ECC algorithm, and substantially grouped in a second configuration for use by the second ECC algorithm.

Klayman is directed to a data communications system while claim 33 is directed to a non-volatile memory system. Klayman fails to disclose or suggest that it may be

determined whether a set of bits in the redundant area of a non-volatile memory may be altered based on whether a predetermined metric associated with performance of the non-volatile memory meets a predetermined criterion. Nor does the reference suggest that the redundant area may include information corresponding to the predetermined metric. It also fails to suggest that the set of bits may include ECC information associated with a first ECC algorithm, where the set of bits are substantially grouped in a first configuration for use by the first ECC algorithm. Further, Klayman fails to suggest that the set of bits may be altered responsive to determining that the predetermined metric meets the predetermined criterion and that the set of bits may be altered to include ECC information associated with a second ECC algorithm. Still further, Klayman fails to disclose that the set of bits may be substantially grouped in a second configuration for use by the second algorithm.

The Klayman reference merely discloses a data communication system that may implement dynamic forward error correction to correct transmission errors on a transmission channel connecting a communications transmitter and communications receiver. Nothing in the reference either discloses or suggests the applicability of such forward error correction to any other system type, let alone a non-volatile memory system. Despite the fact that the Klayman reference uses multiple memory devices (references 122, and 131a1 through 131n2 of Figure 2; reference 155 of Figure 3), no mention of error correction is made in Klayman with respect to these devices.

Still further, forward error correction is an error correction mode that is generally unique to data communications systems, not non-volatile memory systems. It is used in Klayman for transmission of data by a *communications transmitter* to a *communications receiver* in an attempt to compensate for *transmission errors* that may occur over *the transmission medium of the communications channel* that connects the *communications transmitter* to the *communications receiver*. The forward error correction is only used for decoding of transmitted analog signals at the communications receiver and does not relate to error correction that may occur during reading and writing of digital data in a non-volatile memory. It is therefore respectfully submitted that problems associated with storing data in a non-volatile memory are substantially different than problems associated with data transmission from a communications transmitter to a communications receiver

along a transmission channel. Consequently, there is no motivation to combine the teachings of Klayman with teachings relating to non-volatile memory systems.

The portion of the present application that the Examiner has deemed to be "Applicant's Admitted Prior Art" (APA) fails to disclose or suggest the method of claim 33. Although that portion of the present application references two ECC algorithms that may be used in connection with a non-volatile memory, there is no suggestion that it may be determined whether a set of bits in the redundant area of a non-volatile memory may be altered based on whether a predetermined metric associated with performance of the non-volatile memory meets a predetermined criterion. Nor does the APA discussion suggest that the redundant area may include information corresponding to the predetermined metric. It also fails to suggest that the set of bits may include ECC information associated with a first ECC algorithm, where the set of bits are substantially grouped in a first configuration for use by the first ECC algorithm. Further, the APA discussion fails to suggest that the set of bits may be altered responsive to determining that the predetermined metric meets the predetermined criterion and that the set of bits may be altered to include ECC information associated with a second ECC algorithm. Still further, the APA discussion fails to disclose that the set of bits may be substantially grouped in a second configuration for use by the second algorithm.

For the reasons stated above, there is no motivation to combine Klayman with the APA discussion.

Claim 39

New claim 39 reads as follows:

> 39. A memory system comprising:
> a non-volatile memory, the non-volatile memory including a physical block, where the physical block includes a page with a data area and a redundant area; and
> a memory manager operable to
> access a metric parameter value from the redundant area, where the metric parameter value corresponds to performance of the non-volatile memory,
> compare the metric parameter value with a predetermined criterion,
> store a first error correction code (ECC) in the redundant area of the page, where the first ECC is used by a first ECC

algorithm when the metric parameter value meets the predetermined criterion, and

store a second ECC in the redundant area of the page, where the second ECC is used by a second ECC algorithm when the metric parameter value fails to meet the predetermined criterion, where the first and second ECC algorithms have different computational costs.

Klayman is directed to a data communications system while claim 39 is directed to a non-volatile memory system. Accordingly, Klayman fails to disclose or suggest a memory manager for a non-volatile memory system. Klayman also fails to disclose or suggest that such a memory manager may be operable to access a metric parameter value from the redundant area of the non-volatile memory, where the metric parameter value corresponds to performance of the non-volatile memory. The reference also fails to disclose or suggest that such a memory manager may be operable to compare the metric parameter value with a predetermined criterion and store a first error correction code (ECC) in the redundant area of the page for use by a first ECC algorithm when the metric parameter value meets the predetermined criterion. Still further, Klayman fails to disclose or suggest that such a memory manager may be operable to store a second ECC in the redundant area of the page that is used by a second ECC algorithm when the metric parameter value fails to meet the predetermined criterion, where the first and second ECC algorithms have different computational costs.

The Klayman reference merely discloses a data communication system that may implement dynamic forward error correction to correct transmission errors on a transmission channel connecting a communications transmitter and communications receiver. Nothing in the reference either discloses or suggests the applicability of such forward error correction to any other system type, let alone a non-volatile memory system. Despite the fact that the Klayman reference uses multiple memory devices (references 122, and 131a1 through 131n2 of Figure 2; reference 155 of Figure 3), no mention of error correction is made in Klayman with respect to these devices.

Still further, forward error correction is an error correction mode that is generally unique to data communications systems, not non-volatile memory systems. It is used in Klayman for transmission of data by a *communications transmitter* to a *communications*

receiver in an attempt to compensate for *transmission errors* that may occur over *the transmission medium of the communications channel* that connects the *communications transmitter* to the *communications receiver*. The forward error correction is only used for decoding of transmitted analog signals at the communications receiver and does not relate to error correction that may occur during reading and writing of digital data in a non-volatile memory. It is therefore respectfully submitted that problems associated with storing data in a non-volatile memory are substantially different than problems associated with data transmission from a communications transmitter to a communications receiver along a transmission channel. Consequently, there is no motivation to combine the teachings of Klayman with teachings relating to non-volatile memory systems.

The portion of the present application that the Examiner has deemed to be "Applicant's Admitted Prior Art" (APA) fails to disclose or suggest the apparatus of claim 39. Although that portion of the present application references two ECC algorithms that may be used in connection with a non-volatile memory, there is no suggestion that a memory manager may be operable to access a metric parameter value from the redundant area of the non-volatile memory, where the metric parameter value corresponds to performance of the non-volatile memory. The APA discussion also fails to disclose or suggest that such a memory manager may be operable to compare the metric parameter value with a predetermined criterion and store a first error correction code (ECC) in the redundant area of the page for use by a first ECC algorithm when the metric parameter value meets the predetermined criterion. Still further, the APA discussion fails to disclose or suggest that such a memory manager may be operable to store a second ECC in the redundant area of the page that is used by a second ECC algorithm when the metric parameter value fails to meet the predetermined criterion, where the first and second ECC algorithms have different computational costs.

Claim 44

44. A memory system comprising:

a non-volatile memory, the non-volatile memory including multiple physical blocks, where each of the physical blocks includes a page with a data area and a redundant area; and

a memory manager operable to

keep track of an average number of times that the multiple physical blocks of the non-volatile memory have been erased,

store a first error correction code (ECC) in the redundant area of a page, where the first ECC is used by a first ECC algorithm when the average number of times that the multiple physical blocks have been erased is less than a predetermined value, and

store a second ECC in the redundant area of the page, where the second ECC is used by a second ECC algorithm when the average number of times that the multiple physical blocks have been erased exceeds the predetermined value, where the first ECC algorithm has a lower computational cost than the second ECC algorithm.

Klayman is directed to a data communications system while claim 44 is directed to a non-volatile memory system. Accordingly, Klayman fails to disclose or suggest a memory manager for a non-volatile memory system. Klayman also fails to disclose or suggest that such a memory manager may be operable to keep track of an average number of times that the multiple physical blocks of the non-volatile memory have been erased and to store a first error correction code (ECC) in the redundant area of a page for use by a first ECC algorithm when the average number of times that the multiple physical blocks have been erased is less than a predetermined value. Nor does Klayman disclose or suggest that the memory manager may be operable to store a second ECC in the redundant area of the page for use by a second ECC algorithm when the average number of times that the multiple physical blocks have been erased exceeds the predetermined value. Further it does not disclose or suggest that the first ECC algorithm may have a lower computational cost than the second ECC algorithm.

Still further, forward error correction is an error correction mode that is generally unique to data communications systems, not non-volatile memory systems. It is used in Klayman for transmission of data by a *communications transmitter* to a *communications receiver* in an attempt to compensate for *transmission errors* that may occur over *the transmission medium of the communications channel* that connects the *communications transmitter* to the *communications receiver*. The forward error correction is only used for decoding of transmitted analog signals at the communications receiver and does not relate to error correction that may occur during reading and writing of digital data in a non-

volatile memory. It is therefore respectfully submitted that problems associated with storing data in a non-volatile memory are substantially different than problems associated with data transmission from a communications transmitter to a communications receiver along a transmission channel.

Still further, forward error correction is an error correction mode that is generally unique to data communications systems, not non-volatile memory systems. It is used in Klayman for transmission of data *by a communications transmitter to a communications receiver* in an attempt to compensate for *transmission errors* that may occur over the *transmission channel that connects the communications transmitter to the communications receiver*. The forward error correction is only used for decoding of transmitted analog signals at the communications receiver and does not relate to error correction that may occur during reading and writing of digital data in a non-volatile memory. It is therefore respectfully submitted that problems associated with storing data in a non-volatile memory are substantially different than problems associated with data transmission from a communications transmitter to a communications receiver along a transmission channel. Consequently, there is no motivation to combine the teachings of Klayman with teachings associated with non-volatile memories.

The portion of the present application that the Examiner has deemed to be "Applicant's Admitted Prior Art" (APA) fails to disclose or suggest the apparatus of claim 44. Although that portion of the present application references two ECC algorithms that may be used in connection with a non-volatile memory, there is no suggestion that a memory manager may be operable to keep track of an average number of times that multiple physical blocks of the non-volatile memory have been erased and to store a first error correction code (ECC) in the redundant area of a page for use by a first ECC algorithm when the average number of times that the multiple physical blocks have been erased is less than a predetermined value. Nor does the APA discussion disclose or suggest that the memory manager may be operable to store a second ECC in the redundant area of the page for use by a second ECC algorithm when the average number of times that the multiple physical blocks have been erased exceeds the predetermined value. Further, the APA discussion does not disclose or suggest that the first ECC algorithm may have a lower computational cost than the second ECC

algorithm.

THE KLAYMAN REFERENCE IS NON-ANALOGOUS ART

The Klayman reference is not directed to a non-volatile memory storage system as claimed in the present application. Rather, it is directed to non-analogous art that is not within the scope of references that may be used to determine the patentability of the present claims.

As stated by the Federal Circuit in *In re Oetiker*, 24 USPQ2d 1443, 1446 (Fed. Cir. 1992):

> In order to rely on a reference as a basis for rejection of the applicant's invention, the reference must either be in the field of the applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. See *In re Deminski*, 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed.Cir. 1986). Patent examination is necessarily conducted by hindsight, with complete knowledge of the applicant's invention, and the courts have recognized the subjective aspects of determining whether an inventor would reasonably be motivated to go to the field in which the examiner found the reference, in order to solve the problem confronting the inventor. *We have reminded ourselves and the PTO that it is necessary to consider "the reality of the circumstances", In re Wood*, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979) -- in other words, common sense -- in deciding in which fields a person of ordinary skill would reasonably be expected to look for a solution to the problem facing the inventor.

(emphasis added).

The Federal Circuit further refined this concept in *Wang Laboratories Inc. v. Toshiba Corp.*, 26 USPQ2d 1767, 1773 (Fed. Cir. 1993), stating:

> *Analogous art* is that which is relevant to a consideration of obviousness under section 103. *See In re Sovish,* 769 F.2d 738, 741, 226 USPQ 771, 773 (Fed.Cir. 1985). "Whether something legally within the prior art is 'analogous' is a fact question. . . ." *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568 n.9, 1 USPQ2d 1593, 1597 n.9 (Fed.Cir.), cert. denied, 481 U.S. 1052 (1987). *Two criteria are relevant in determining whether prior art is analogous: (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the art is not within the same field of endeavor, whether it is still reasonably*

pertinent to the particular problem to be solved. In re Clay, 966 F.2d 656, 658-59, 23 USPQ2d 1058, 1060 (Fed.Cir. 1992) (citations omitted).

(emphasis added).

The Klayman reference is not from the same field of endeavor as the apparatus and methods claimed in the present application. The pending independent claims are directed to non-volatile memory systems. *Non-volatile memory systems are directed to storage of data in an array of semiconductor storage cells that can retain the data in the storage cells in the absence of electrical power.* In contrast, the Klayman reference is directed to a data communication system. *Data communications systems are directed to communications between a communications transmitter and a communications receiver over a communications channel.* Klayman is not directed to art of memory storage systems.

Likewise, the Klayman reference is not reasonably pertinent to the particular problem solved by the apparatus and methods claimed in the present application. The claims of the present application are directed to problems associated with memory storage devices. The independent claims of the present application use metric a parameter associated with performance of the non-volatile memory, such as the number of times a physical block has been erased, *to alter the operation of the non-volatile memory storage and maintain the integrity of the stored data. The non-volatile memory is expressly organized into physical blocks that include pages that, in turn, each have a data area and a redundant area. The operation of the non-volatile memory is altered by storing a first ECC in the redundant area of the page for use by a first ECC algorithm when the metric parameter and/or corresponding values stored in the redundant area meets a predetermined criterion. A second ECC value is stored and/or the first ECC is altered in the redundant area of the page for use by a second ECC algorithm when the metric parameter and/or corresponding values stored in the redundant area fail to meet the predetermined criterion.*

As noted above, the Klayman reference is directed to a data communications system. The "Field of the Invention" identified by Klayman is:

> This invention relates, in general, to *data communications and data communications systems and devices* and, more specifically, to an

> apparatus and method for adaptive *forward error correction* in *data* ***communications***.

(emphasis added).

As noted above, forward error correction is an error correction mode that is generally unique to data communications systems, not non-volatile memory systems. It is used in Klayman for transmission of data *by a communications transmitter to a communications receiver* in an attempt to compensate for *transmission errors* that may occur over the *transmission channel that connects the communications transmitter to the communications receiver*. The forward error correction is only used for decoding of transmitted analog signals at the communications receiver and does not relate to error correction that may occur during reading and writing of digital data in a non-volatile memory. It is therefore respectfully submitted that problems associated with storing data in a non-volatile memory are substantially different than problems associated with data transmission from a communications transmitter to a communications receiver along a transmission channel.

An example of an instance where the Federal Circuit found that a jury properly determined that certain references were not analogous to the claims of an issued patent occurred in *Wang Laboratories* (cited above). In *Wang Laboratories*, there was an issue as to whether *certain storage memories were analogous art to the storage memory of the issued patent.* The Federal Circuit found that it was proper to conclude that the prior storage memories *were not* analogous art that could be used against the claims of the issued patent. Rather, the Federal Circuit stated:

> The Allen-Bradley art is not in the same field of endeavor as the claimed subject matter *merely because it relates to memories.* It involves memory circuits in which modules of varying sizes may be added or replaced; in contrast, the subject patents teach compact modular memories.

Wang Laboratories at 1773.

CONCLUSION

In view of the foregoing, it is respectfully requested that a timely Notice of Allowance be issued in this case. If for any reason the Examiner believes that a telephone interview would be helpful to resolve any issues, he is respectfully requested to contact the undersigned attorney.

Respectfully submitted,

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